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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/758,309

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Volker Krueger

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EXAMINER

BOMAR, THOMAS S

ART UNIT

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3676

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/758,309

Applicant(s)

KRUEGER, VOLKER

Examiner

Shane BOMAR

Art Unit

3676

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 November 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 6-28 is/are pending in the application.
- 4a) Of the above claim(s) 3, 14 and 22-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4, 6-13, 15-21 and 26-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2, 4, 6, 8, 11, 12, 21, 26, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 6,213,226 to Eppink et al.

Regarding claims 1 and 2: Eppink et al teach a method of drilling a wellbore that involves the following steps:

- Conveying a drilling assembly **270** in the wellbore, said drilling assembly including a first adjustable stabilizer **278** having independently adjustable ribs and a second stabilizer **276** including a plurality of independently adjustable ribs having an undergauge outer diameter (Figs. 36 and 39; 22:9-16).
- Engaging a wellbore wall using at least one of the plurality of ribs of the second stabilizer, said wellbore having a centerline along the drilling assembly (Figs. 36, 37, and 39).
- Applying a force on the wellbore using the first stabilizer to adjust a position of a first center of said first adjustable stabilizer in the wellbore relative to a second center of said second stabilizer and with respect to the centerline of the wellbore to drill the wellbore along a desired wellbore trajectory (see Figs. 34-39 and associated description; figs. 47-48; 16:19-21 and 22:56-65).

However, it is not specifically taught that each of the first plurality of independently adjustable ribs is independently controlled since it is preferred that the

blades actuate simultaneously (col. 15, lines 25-26). Nevertheless, it is taught that each blade has its own individual piston extender and return spring, thereby making each blade capable of independent control (col. 15, lines 20-25). Therefore, it would have been obvious to one of ordinary skill in the art to use the known capabilities of the stabilizers to achieve the predictable result of individual control of the adjustable ribs when a non-preferred situation arise downhole wherein the preferred capability of the ribs will not allow the tool to operate properly.

Regarding claim 4: The independently adjustable ribs of the second adjustable stabilizer in claim 2 also apply a force on the wellbore to adjust a position of a first center of said first adjustable stabilizer in the wellbore relative to a second center of said second stabilizer and with respect to the centerline of the wellbore (Fig. 35 and 22:56-65).

Regarding claim 6: The second stabilizer has no wall contact on an upper portion and has wall contact at the lower portion (Figs. 36 and 39).

Regarding claim 8: The method further involves drilling said wellbore along a predetermined well path (1:5-10).

Regarding claims 11 and 12: The method further involves adjusting the force applied by one of the first and second stabilizers based at least in part on a pre-selected wellbore trajectory (see Fig. 39).

Regarding claim 21: Eppink et al teach a method for controlling drilling direction in a wellbore comprising: (a) drilling the wellbore with a drilling assembly including a drill bit rotated by a drilling motor, a first adjustable stabilizer and a second stabilizer having an undergauge outer diameter (Figs. 36 and 39); and (b) controlling a drilling direction of the drill bit by adjusting a position of a first center of said first adjustable stabilizer relative to a second center of said second stabilizer and with respect to a wellbore centerline along the drilling assembly while at least a portion of the second stabilizer engages a wellbore wall (see Figs. 35-39). The limitation of independently controlling the adjustable ribs is met for the same rationale as provided against claim 1 above.

Regarding claim 26: The second stabilizer has a set of ribs containing a plurality of independently controllable ribs **40/42** to control drilling direction (16:19-21 and 22:56-65).

Regarding claim 27: The drilling assembly includes a drill bit that is rotated by a drilling motor and wherein the first stabilizer is on a portion of the motor (22:6-11).

3. Claims 7, 9, 10, 13, and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eppink et al in view of US 5,220,963 to Patton.

Regarding claims 7, 9, 10, 13, 15, and 17-19: Eppink et al teach a system for controlling a trajectory of a wellbore. The system includes the following features:

- A drilling assembly **270** deployed in said wellbore by a rotatable tubular member, said drilling assembly including a drill bit at an end thereof that is rotatable by a drilling motor (22:62-65) carried by the drilling assembly, said wellbore having a centerline along the assembly.
- A first adjustable stabilizer **278** disposed in said drilling assembly having a first set of ribs **40/42** spaced around said first adjustable stabilizer, with each rib being independently radially extendable (figs. 47-48; 22:56-65 and 16:19-21).
- A second stabilizer **276** including a plurality of independently radially extendable ribs **40/42** spaced apart from said first adjustable stabilizer.
- A controller in the drilling assembly adjusting the position of a first center of the first adjustable stabilizer in the wellbore relative to a second center of the second stabilizer in the wellbore while the second stabilizer engages a wellbore wall, wherein the position of the first center relative to the second center is determined at least in part based upon a desired wellbore trajectory (see Figs. 34-39 and 16:50-63).

The limitation of independently controlling the adjustable ribs is met for the same rationale as provided against claim 1 above. However, it is not specifically taught that the

method or system includes a sensor for measuring inclination or determining a parameter indicative of direction of drilling of said wellbore so that drilling direction of said wellbore can be altered if said parameter is outside a predetermined limit, or that the desired wellbore trajectory is stored in the memory of the controller.

Patton teaches a method and system for controlling the trajectory of a wellbore similar to that of Eppink et al. It is further taught that the method or system includes a sensor for measuring inclination and/or for determining a parameter indicative of direction of drilling of said wellbore so that drilling direction of said wellbore can be altered if said parameter is outside a predetermined limit (21:40-24:36). It would have been obvious to one of ordinary skill in the art, having the teachings of Eppink et al and Patton before him at the time the invention was made, to modify the method and system taught by Eppink et al to include the memory, sensors, and methods of measuring of Patton, in order to obtain a calculated drill profile (23:3-19 of Patton). One would have been motivated to make such a combination since Eppink et al is silent to the directional control system electronics and sensors, although one of ordinary skill in the art knows that the directional drilling could not be accomplished without some sort of sensors to determine inclination and direction of the downhole components, which Patton have shown to be notoriously known.

Regarding claim 16: The second stabilizer has an undergauge outer diameter to provide no wall contact on an upper portion and wall contact at the lower portion (Figs. 36 and 39 of Eppink).

Regarding claim 20: The position of the second stabilizer is adjusted by changing the extension of the at least one independently extendable rib (see Fig. 39 of Eppink).

Response to Arguments

4. Applicant's arguments with respect to claims 1, 13, and 21 have been considered but are moot in view of the new ground(s) of rejection. However, it is noted that the Examiner has relied on the fact that the independently adjustable ribs of Eppink possess the capability of being independently controllable, thereby making the claims unpatentable over the prior art.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane Bomar whose telephone number is (571)272-7026. The examiner can normally be reached on Monday-Thursday from 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer H. Gay can be reached on 571-272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer H Gay/
Supervisory Patent Examiner,
Art Unit 3676

/S. B./
Examiner, Art Unit 3676